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REMARKS

Claims 12, 14 to 36, 38 to 58, 60 to 75 and 80 to 82 remain in the application.

Original claims 1 to 11 and 76 to 79 have been cancelled from the application without prejudice as Applicant wishes to reserve the right to file divisional applications in support of these claims at a later date. Applicant hereby confirms the election of claims 12 to 75 and 80 to 82 and by the cancellation of the non-elected claims the Examiner does not have to give further consideration thereto in compliance with 37 C.F.R. 1.142(b).

Typographical errors have been corrected in claims 23 and 44.

In the Office Action the Examiner raised an objection to claims 12, 13, 21, 28, 33 and 54 under 35 U.S.C. 112 and pertaining to some specific terminology as appearing in some of these claims. The terminology objected to has been corrected where necessary. However, Applicant wishes to point out to the Examiner that his objection to claim 21 appears to have been in error and it is believed that the Examiner wanted to refer to claim 25. The wording "said area" as appearing in claim 25 does, however, find proper antecedent basis at claim 12, line 4. Similarly, the Examiner's objection to the wording "said optical elements" as found in claim 33 is improper as there is proper antecedent basis for this wording in claim 26, line 6. Accordingly, the objected to wording in those two claims has not been modified.

In the Office Action, the Examiner cited the Kendall U.S. Patent 6,207,925 as a prime reference and rejected claims 26, 31 and 81 as being unpatentable and anticipated by this reference under 35 U.S.C. 102(b).

Applicant wishes to point out to the Examiner that independent claim 26 has been further amended to recite that the shaping of the laser beam intensity profile provides two seal regions separated by a cut region. Proper support for this wording can be found in the disclosure, for example at page 11, lines 4 to 7. It is also pointed out to the Examiner that the laser beam of the present invention is one that is shaped, as shown in Figure 2, whereby the intensity of the shaped beam along the seal length of a single beam

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will provide a cut with opposed seals on the sealing volume of super-imposed sheets. This is clearly not the case with the Kendall Patent where three distinct beams are used and namely a central cutting beam and opposed side welding beams. As clearly described in Kendall the power density of each beam is adjusted either at the source after the separation of the beams or by a power density modifier adapted to enable adjustment of each sub-beam relative to the other sub-beams. Separate power density modifiers may be employed for each of the sub-beams and this can be done either at the initial machine set-up or during a scan. This provides for Kendall to control the beams individually and as stated one or both of the weld beams may be interrupted so that only a cut is provided or the cutting beam may be intermittently interrupted to produce a perforation. Accordingly, Kendall is not readable on the beam shaping limitation of claim 26.

Furthermore, claim 26 was amended whereby to recite that the super-imposing and bringing into contact at least two of the films together is provided by actuating a support mechanism interconnecting two jaws of an optical clamp to allow a closing of the clamp whereupon the films are pressed between the jaws. This structural limitation is also clearly not taught by Kendall. Accordingly, Applicant submits that claim 26 clearly patentably distinguishes over this reference. Further, claim 31 is dependent upon claim 26 and further restricts the limitation and in any event is not anticipated by Kendall. Claim 81 was amended in a similar fashion as claim 26 and is also not anticipated by Kendall for the same reasons.

In view of the above amendments made to claims 26 and 81, Applicant submits that the invention as defined by those two claims and dependent claim 31 is not anticipated and a favourable reconsideration of the patentable merits is therefore earnestly solicited.

In the Office Action the Examiner further rejected claims 12 to 19 and 21 to 24 based on Kendall when combined with the Nettesheim U.S. Patent 6,387,209, wherein Nettesheim teaches re-injected an unabsoed part of the incident intensity of the beam by using a reflective device to improve efficiency.

Applicant wishes to point out to the Examiner that claim 12 has been amended similarly to claim 26 to recite that the films are super-imposed together by

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actuating a support mechanism and to connecting two jaws of an optical clamp to allow a closing of the clamp whereupon the films are pressed between the jaws and that the laser beam is directed through the aperture of the optical clamp.

The Nettesheim U.S. Patent 6,387,209 teaches an optical clamp having two jaws which are rotatable upon their respective axis. One of the jaws (the sealing shoe 10) has inside an elongated light source (flash lamp 29). The light of the flash lamp serves to heat the films. The light of the lamp 29 is brought into focus on the films by means of a reflector 27 that has an elliptic shape. The jaw 10 has a window 38 through which light is transmitted to the films. The window 38 is profiled (see Figure 2) where the films are brought in contact, i.e., window 38 is in contact with the films. In order to be correctly focalized on the films, the flash lamp must be exactly positioned at one of the focal points of the elliptical mirror. The other jaw (the counter-shoe 11) is profiled, as shown in Figure 2, where the films are brought in contact. The optical clamp may also include a reflector 62 (see Figure 5). However when the other jaw 11 includes a reflector 62, it has a window 61 which is in contact with the films. Contrary to this reference, the clamp as defined in the claims allows the films to be sealed and cut using a laser beam that passes through the aperture of the optical jaw. It provides many advantages such as allowing for focalizing the laser beam independently and avoiding submitting the laser to mechanical vibrations. Furthermore, contrary to the clamp taught by Nettesheim, where the two jaws must be in contact with the films when the films are sealed and therefore be adequately profiled, only the contact jaw 31 of the present invention needs to be in contact with the films while they are sealed. This is very advantageous since it reduces enormously the maintenance of the system. It would be difficult to a person skilled in the art to combine the teachings of this combination since the clamp taught by Nettesheim would not work if the source was not inside the clamp and exactly positioned at one of the focus of the elliptic mirror. Therefore, in view of the amendments made to claim 12 all of the dependent claims incorporate therein the same distinguishing limitations and are clearly not obvious in view of the teachings of Kendall when combined with Nettesheim. A favourable reconsideration of this rejection is therefore also solicited.

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The patent to Armitage was also combined with Kendall and Nettesheim to reject claim 25 which is dependent indirectly upon claim 12 and accordingly claim 25 also clearly patentably distinguishes from the combination. The Armitage reference has been noted for its teaching.

Independent claim 27 is also deemed patentable for the above-noted distinguishing limitations and the Guckenberger U.S. Patent 5,630,308 has been noted for its Gaussian profile. This patent relates to laser scoring which is different than laser sealing and cutting. Claim 27 is also patentable for the above-noted distinguishing features as found in claim 12.

Applicant submits that dependent claims 28 to 33 are also patentable over the other combination of references cited by the Examiner in paragraphs 14, 15, 16 and 9 for the above-noted distinctions with respect to the main independent claims that they indirectly depend upon. The Osborne reference has been noted for its teachings of its focusing of a laser beam into a line to linearly weld two sheets together. However, it is deficient in its teachings of the distinguishing limitations found in the amended independent claim upon which these dependent claims are dependent and for the same reason as stated hereinabove, these additional claims are also patentable over the teachings of these combinations.

Referring now to the rejections of claims 34, 36 to 48 and 51 in paragraph 17 of the Office Action as being obvious under 35 U.S.C. 103(a) in view of the combination of Heydarpour, U.S. Patent 5,911,665, the Kendall and the Nettesheim reference. It is pointed out to the Examiner that the citation of U.S. Patent 5,911,665 is improper as this patent does not deal with laser sealing and cutting. It deals with the composition of a polymeric film to overcome the problem of pin holes created in filled pouches which eventually causes leaking during transportation. They are not concerned with a sealing problem but the creation of pin holes. Heydarpour adds nothing to the Kendall reference or the Nettesheim reference concerning the use of optical sealing clamps with the sealing beam having its intensity shaped to obtain a desired intensity profile and to provide a corresponding absorb intensity profile in the section of the tube. Claim 34 was amended to also recite that the tube is flattened by actuating a support mechanism and

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the interconnections of two jaws of an optical clamp to allow a closing of the clamp whereupon the films are pressed together for a predetermined time interval. Accordingly, independent claim 34 clearly, patentably distinguish from this combination. Claims 36 to 48 are dependent on this claim directly or indirectly and are also patentably distinct from the combination. This is also the case with dependent claim 51.

The Examiner also rejected claim 35 based on the combination of Heydarpour, Kendall, Nettesheim and the Kovacs U.S. Patent 4,532,753. Claim 35 is dependent upon claim 34 and is also patentable over this combination. Kovacs was only cited for its teachings of film overlapping and that has been noted and is well known in the art.

The rejection of claims 49 and 52 in paragraph 19, claim 50 in paragraph 20, claim 53 in paragraph 21 over various combinations of the references above-discussed have been noted and again all of these claims clearly, patentably distinguish from these references for the reasons as above-noted and for the amendments made to the independent claims that these dependent claims are directly or indirectly dependent upon. Therefore, a favourable reconsideration of these rejections is also warranted.

Referring now to paragraph 22 of the Office Action, the Examiner rejected claims 54, 55, 58 to 70, 73, 80 and 82 based on Kendall when combined with Nettesheim. It is pointed out that claim 54 was further amended to include the recitation of the actuation of two jaws of an optical sealing clamp to allow a closing of the clamp whereupon the films are present between the jaws and that the laser beam intensity is directed through the aperture of the clamp. The claim further recites that the intensity is shaped to obtain a desired intensity profile. These references do not talk about shaping an intensity profile of a laser beam but describe three distinct laser beams. Therefore, a favourable reconsideration of the patentable merits of these claims is also earnestly solicited for the above-stated reason and the previous stated reasons concerning the pertinency of these references.

Concerning independent claim 80, this claim was further amended to introduce the actuation of a support mechanism interconnecting two jaws of an optical clamp to allow closing of the clamp whereupon the films are pressed between the jaws and

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that the laser beam is directed through the aperture of the clamp. It also contains the limitations of re-injecting partly or totally an unabsorbed portion of the incident laser beam and the pertinency of the Nettesheim reference concerning this teaching has been discussed in detail hereinabove and Nettesheim does not anticipate this limitation.

Claim 82 has also been modified to introduce the actuating jaws to close the clamp to press the films together and directing the laser beam through the aperture of the clamp and that the intensity of the beam is shaped to obtain a desired intensity profile and to provide a corresponding absorb intensity profile in the section of the package whereby to provide a sealing operation or a sealing and cutting operation. This is not taught by the combination of references as set forth in paragraph 22 of the Office Action.

With respect to paragraph 23 of the Office Action, claims 56 and 57 are dependent upon claim 54 and for the above-noted reasons patentably distinguish from the combinations stated in paragraph 23.

With respect to paragraph 24 of the Office Action claims 71 and 74 also depend on claim 54 and for the above-noted distinguishing features as contained in claim 54 these claims are also patentably distinct from the combination of references as cited by the Examiner.

Concerning paragraph 25 of the Office Action, claim 72 which is dependent upon claim 54 is also patentable due to the distinguishing limitations found in claim 54. Accordingly, the combination of references cited do not render obvious the invention as defined by claim 72 when combined with claim 54.

With respect to paragraph 27 of the Office Action, the distinguishing features in claim 12 clearly, patentably distinguish the present invention over the combination of references cited. Claim 20 is dependent upon claim 12 and also not anticipated by this combination. A favourable reconsideration is also requested. With reference now to paragraph 28 of the Office Action, claims 26 and 30 have been rejected on the combination of Osborne and Kendall. These two references have been addressed hereinabove and the distinguishing features of claim 26 have also been discussed hereinabove. Therefore, the combination of these two references does not render obvious claim 26 nor does it render claim 30, which is dependent thereon, obvious.

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Concerning paragraph 29 of the Office Action, claim 54 is rejected based on Heydarpour, Kendall and Nettekoven. This claim has been amended as stated hereinabove and the distinguishing features of this claim over these references has also been discussed hereinabove. The deficiencies in Heydarpour have been dealt with in detail in the "Remarks" portion of this amendment and also apply here with respect to this rejection.

Referring to paragraph 30 of the Office Action, claims 71 and 74 are rejected based on the combination of four references and these two claims are dependent upon claim 54 which contains distinguishing limitations set forth hereinabove which clearly defines over these three references and does not render the claims obvious in view of the deficiencies of the teachings of this combination. A favourable reconsideration is also requested.

In view of the above amendments and remarks, this application is now believed to be in condition for allowance and early notice to that effect is earnestly solicited.

Respectfully submitted,
ROLAND BASQUE

By:



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